

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings.

What is claimed is:

1. (previously presented) A paper registration apparatus for a duplex printer which performs side registration of a sheet of paper before the sheet of paper is transferred toward a feed roller to print an image on a rear side of the sheet of paper after a front side of the sheet of paper is printed, the apparatus comprising:

a lower guide plate supporting the sheet of paper thereon and having a groove formed at one side;

a side wall guide vertically installed at the side of the groove of the lower guide plate parallel to a direction of a paper transfer route to perform a side registration of the sheet of paper;

a duplex transfer roller installed perpendicular to the direction of the paper transfer route;

an idle roller installed above the duplex transfer roller at a predetermined inclination angle with respect to the duplex transfer roller to move the sheet of paper towards the sidewall;

an idle roller rotation shaft holder rotatably supporting both ends of a rotation shaft of the idle roller;

a pressing unit providing an elastic force to the idle roller toward the duplex transfer roller; and

a pivot unit that elastically biases the idle roller relative to the side wall guide to set the inclination angle of the idle roller relative to the side wall guide within a predetermined range according to a type of the paper.

2. (original) The paper registration apparatus as claimed in claim 1, wherein an upper guide plate having a groove formed at a position corresponding to the groove of the lower guide plate is provided above the lower guide plate.

3. (original) The paper registration apparatus as claimed in claim 1, wherein a range of the inclination angle is substantially between 4°-9°.

4. (original) The paper registration apparatus as claimed in claim 3, wherein a range of the inclination angle is substantially between 5°-8°.

5. (original) The paper registration apparatus as claimed in claim 1, wherein the pivot unit comprises:

an elastic member elastically supporting one side of the idle roller rotation shaft holder;

an arm extending horizontally from the idle roller rotation shaft holder in a direction perpendicular to the idle roller rotation shaft; and

a confining unit confining a pivot range of the arm.

6. (original) The paper registration apparatus as claimed in claim 5, wherein the confining unit is a stopper where a slot is formed to confine a horizontal space in which the arm is inserted and pivots.

7. (currently amended) A paper registration apparatus for a duplex printer which performs side registration of a sheet of paper before the sheet of paper is transferred toward a feed roller to print an image on a rear side of the sheet of paper after a front side of the sheet of paper is printed, the apparatus comprising:

a lower guide plate supporting the sheet of paper thereon and having a groove formed at one side;

a side wall guide vertically installed at the side of the groove of the lower guide plate parallel to a direction of a paper transfer route to perform a side registration of the sheet of paper;

a duplex transfer roller installed perpendicular to the direction of the paper transfer route;

an idle roller installed above the duplex transfer roller at a predetermined inclination angle with respect to the duplex transfer roller to move the sheet of paper towards the sidewall;

an idle roller rotation shaft holder rotatably supporting both ends of a rotation shaft of the idle roller;

a pressing unit providing an elastic force to the idle roller toward the duplex transfer roller; and

a pivot unit that elastically biases the idle roller relative to the side wall guide to set the inclination angle of the idle roller relative to the side wall guide within a predetermined range according to a type of the paper;

~~The paper registration apparatus as claimed in claim 1,~~

wherein the pressing unit comprises:

a circular column member extending upward from an upper center portion of the idle roller rotation shaft to be rotatably supported in a printer body; and

a spring installed around an outer circumference of the circular column member to press the idle roller rotation shaft holder and the idle roller toward the transfer roller,

wherein the circular column member is a center shaft of the rotation of the idle roller.

8. (previously presented) A paper registration apparatus for a printer which performs side registration of a sheet of paper, the apparatus comprising:

an idle roller installed above a transfer roller at a predetermined inclination angle with respect to the transfer roller to move a sheet of paper towards a sidewall of the paper registration apparatus; and

a pivot unit that elastically biases the idle roller relative to the sidewall to set the inclination angle of the idle roller relative to the sidewall within a predetermined range according to a type of the paper.

9. (previously presented) The paper registration apparatus as claimed in claim 8, wherein an upper guide plate having a groove formed at a position corresponding to a groove of a lower guide plate is provided above the lower guide plate.

10. (original) The paper registration apparatus as claimed in claim 8, wherein a range of the inclination angle is substantially between 4° - 9° .

11. (original) The paper registration apparatus as claimed in claim 10, wherein a range of the inclination angle is substantially between 5° - 8° .

12. (original) The paper registration apparatus as claimed in claim 9, wherein the pivot unit comprises:

an idle roller rotation shaft and an idle roller rotation shaft holder;
an elastic member elastically supporting one side of the idle roller rotation shaft holder;
an arm extending horizontally from the idle roller rotation shaft holder in a direction perpendicular to the idle roller rotation shaft; and
a confining unit confining a pivot range of the arm.

13. (original) The paper registration apparatus as claimed in claim 12, wherein the confining unit is a stopper where a slot is formed to confine a horizontal space in which the arm is inserted and pivots.

14. (currently amended) A paper registration apparatus for a printer which performs side registration of a sheet of paper, the apparatus comprising:
an idle roller installed above a transfer roller at a predetermined inclination angle with respect to the transfer roller to move a sheet of paper towards a sidewall of the paper registration apparatus;

a pivot unit that elastically biases the idle roller relative to the sidewall to set the inclination angle of the idle roller relative to the sidewall within a predetermined range according to a type of the paper; and ~~The paper registration apparatus as claimed in claim 8, further comprising~~

a pressing unit providing an elastic force to the idle roller toward the transfer roller, and wherein the pressing unit further comprises:

a circular column member extending upward from an upper center portion of an idle roller rotation shaft to be rotatably supported in a printer body; and

a spring installed around an outer circumference of the circular column member to press an idle roller rotation shaft holder and the idle roller toward the transfer roller,

wherein the circular column member is a center shaft of the rotation of the idle roller.

15. (previously presented) A paper registration apparatus for a duplex printer which performs side registration of a sheet of paper before the sheet of paper is transferred toward a feed roller to print an image on a rear side of the sheet of paper after a front side of the sheet of paper is printed; the apparatus comprising:

a lower guide plate supporting the sheet of paper thereon and having a groove formed at one side;

a side wall guide vertically installed at the side of the groove of the lower guide plate parallel to a direction of a paper transfer route to perform a side registration of the sheet of paper;

a duplex transfer roller installed perpendicular to the direction of the paper transfer route;

an idle roller installed above the duplex transfer roller at a predetermined inclination angle with respect to the duplex transfer roller to move the sheet of paper towards the sidewall;

an idle roller rotation shaft holder rotatably supporting both ends of a rotation shaft of the idle roller;

a pressing unit providing an elastic force to the idle roller toward the duplex transfer roller; and

a pivot unit that elastically biases the idle roller relative to the side wall guide to set the inclination angle of the idle roller relative to the side wall guide within a predetermined range according to a physical characteristic of the paper.

16. (previously presented) The paper registration apparatus of claim 15, wherein the physical characteristic of the paper is weight.